

## Refine Search

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Terms	Documents
L11 and (change or modify or modificat\$ or modification)	338

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<u>Set</u> <u>Name</u> <u>Query</u> side by side	<u>Hit</u> <u>Count</u>	<u>Set</u> <u>Name</u> result set
<i>DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR</i>		
<u>L12</u> L11 and (change or modify or modificat\$ or modification)	338	<u>L12</u>
<u>L11</u> 15 and (credit and account and "credit card")	364	<u>L11</u>
<u>L10</u> 12 and 15	1	<u>L10</u>
<u>L9</u> 12 and 14	1	<u>L9</u>
<u>L8</u> 12 and 13	1	<u>L8</u>
<u>L7</u> 12 and L6	6	<u>L7</u>
<u>L6</u> 705.clas.	28926	<u>L6</u>
<u>L5</u> 705/38	937	<u>L5</u>
<u>L4</u> 705/35	2091	<u>L4</u>
<u>L3</u> 705/39	1643	<u>L3</u>
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account")

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near modification)

1899 L1

END OF SEARCH HISTORY

[First Hit](#) [Fwd Refs](#) [Previous Doc](#) [Next Doc](#) [Go to Doc#](#)

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L2: Entry 5 of 7

File: USPT

Feb 9, 1999

US-PAT-NO: 5870456

DOCUMENT-IDENTIFIER: US 5870456 A

TITLE: Automated interactive bill payment system using debit cards

DATE-ISSUED: February 9, 1999

## INVENTOR-INFORMATION:

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NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Telepay, Inc.	Dallas	TX			02

APPL-NO: 08/ 946272 [\[PALM\]](#)

DATE FILED: October 7, 1997

## PARENT-CASE:

This is a continuation of application Ser. No. 08/797,981 filed on Jan. 22, 1997, now U.S. Pat. No. 5,715,298.

INT-CL: [06] [H04](#) [M](#) [11/00](#)

US-CL-ISSUED: 379/91.01; 705/40

US-CL-CURRENT: [379/91.01](#); [705/40](#)

FIELD-OF-SEARCH: 379/91.01, 379/91.02, 379/93.02, 379/93.01, 379/93.12, 379/93.13, 379/93.26, 379/93.28, 379/143, 379/144, 235/375, 235/379, 235/380, 705/39, 705/40

## PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

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Search ALL

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	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<a href="#">4674044</a>	June 1987	Kalmus et al.	
<input type="checkbox"/>	<a href="#">4694397</a>	September 1987	Grant et al.	
<input type="checkbox"/>	<a href="#">4823264</a>	April 1989	Deming	
<input type="checkbox"/>	<a href="#">4947028</a>	August 1990	Gorog	
<input type="checkbox"/>	<a href="#">5121945</a>	June 1992	Thomson et al.	

<input type="checkbox"/>	<u>5126936</u>	June 1992	Champion et al.
<input type="checkbox"/>	<u>5220501</u>	June 1993	Lawlor et al.
<input type="checkbox"/>	<u>5283829</u>	February 1994	Anderson
<input type="checkbox"/>	<u>5285382</u>	February 1994	Muehlberger et al.
<input type="checkbox"/>	<u>5383113</u>	January 1995	Kight et al.
<input type="checkbox"/>	<u>5652786</u>	July 1997	Rogers
<input type="checkbox"/>	<u>5715298</u>	February 1998	Rogers

## OTHER PUBLICATIONS

Information Networks, V6, No. 8, Jul. 26, 1993, Scanfone Alive and Well; Bell Atlantic Readies for Rollout.  
Tanaka, David; Interac Rools Out Debit Card System; Computing Canada vol. V18, Issue No. 21, Oct. 13, 1992.  
Blackwell, Gerry; Computing In Banking; Technology is the Weapon; Computing Canada, V16, p. 59, Oct. 11, 1990.  
The Score Card Evens in a POS Title Fight; Bank Network News Jun. 11, 1992, VIONZ.

ART-UNIT: 273

PRIMARY-EXAMINER: Chan; Wing F.

ATTY-AGENT-FIRM: Haynes and Boone, L.L.P.

## ABSTRACT:

Method and apparatus for processing payment transactions using debit card numbers without the requirement of a personal identification number (PIN) is disclosed. A telepay system of the present invention provides an interface between a standard touchtone telephone and at least one debit card network such that real-time bill payment transactions may be effected using a keypad of the telephone. The telepay system includes an interactive voice response unit for prompting a payor to enter an access code, account number, debit card number and payment amount and for informing the user of the status of the transaction. Real-time processing of transactions is provided through use of debit card networks, rather than the Automated Clearing House. The telepay system is also capable of performing settlement functions and processing inquiries by payees of the system regarding previously processed transactions.

8 Claims, 10 Drawing figures

[Previous Doc](#)[Next Doc](#)[Go to Doc#](#)

[First Hit](#) [Fwd Refs](#)[Previous Doc](#)[Next Doc](#)[Go to Doc#](#)

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L2: Entry 5 of 7

File: USPT

Feb 9, 1999

DOCUMENT-IDENTIFIER: US 5870456 A

TITLE: Automated interactive bill payment system using debit cards

Abstract Text (1):

Method and apparatus for processing payment transactions using debit card numbers without the requirement of a personal identification number (PIN) is disclosed. A telepay system of the present invention provides an interface between a standard touchtone telephone and at least one debit card network such that real-time bill payment transactions may be effected using a keypad of the telephone. The telepay system includes an interactive voice response unit for prompting a payor to enter an access code, account number, debit card number and payment amount and for informing the user of the status of the transaction. Real-time processing of transactions is provided through use of debit card networks, rather than the Automated Clearing House. The telepay system is also capable of performing settlement functions and processing inquiries by payees of the system regarding previously processed transactions.

Brief Summary Text (4):

Bill payment by telephone has been available primarily from financial institutions for approximately 15 years. Heralded as "home banking" this technology allowed a customer of a bank, savings and loan, or credit union to pay any pre-registered bill with the use of a touch tone telephone and that financial institutions interactive voice response unit (provided that they offered the serviced The customer would first have to select a financial institution that offered the service, request to participate in the service, send in a voided check, and then provide a manual list of all the bills that were desired to be paid using this system. In addition, a signature authorization card would be to signed and archived by the financial institution. The financial institution would then manually input all of this information into their computer, and then advise the customer that system access was then available. This process usually took up to two weeks to complete.

Brief Summary Text (5):

Once activated, the customer would then have the capability to call the financial institution and input payment instructions in conjunction with a touch tone telephone and reference each payee by a number that was assigned by the financial institution. This process of bill payment would allow the customer to pay bills by having the bank then issue an "electronic check" to the designated payee. This "electronic" document would then be presented to the Automated Clearing House of the U. S. Banking System for processing and clearing. In reality the process was identical to the processing of a paper check, with the only exception being that there was not any paper involved in the transaction. The payment could still "bounce" and be returned for non-sufficient funds since there was no actual verification on the customer's account balance to insure that sufficient funds were on deposit to cover the transaction. In addition, all in place check clearing time requirements were still in place, as it took typically at least 3-5 days to clear. Until clearing was realized the recipient of the funds never had actual use of the funds used for payment. If a new debt was incurred, it would have to be pre-registered on the system in order to utilize this "electronic" capability. If a customer changed financial institutions, the whole process of pre-registering all

debts, signature cards, and a voided check would have to be repeated. Existing pay by phone systems offered some convenience to the user, but were cumbersome to administer and usage was never widespread.

Brief Summary Text (6):

As "home banking" gained more interest, many companies developed special purpose telephones with visual displays and "swipe card readers" that the consumer could purchase that would allow the use of a debit (ATM) card to basically achieve the same purpose as was evident in previously implemented systems (for the purposes of brevity in this disclosure the term "debit card" shall be construed to mean both debit and credit card). The only differences is that the consumer could now "swipe" the debit card through the reader that was part of the telephone. The Automated Clearing House of the U. S. Banking System was still used to process payments, and all pre-registration and signature cards were still required. All "electronic check" clearing time requirements were still needed, and the transaction would still be returned for non-sufficient funds. If a service offered a specialized telephone and bypassed the Automated Clearing House, using debit card networks, the debit card used to process the transaction required a PIN. There was a natural resistance to the purchase of special telephones that proved to be relatively expensive, in addition to the monthly fees necessary to remain a customer of this service.

Brief Summary Text (12):

In a preferred embodiment, the method of the present invention comprises steps of prompting a caller to enter an access code using a keypad of said telephone, said access code identifying a current payment transaction; responsive to entry of an access code, determining whether said entered access code is valid; prompting said caller to enter an account number using said telephone keypad said account number identifying a payee in connection with said current payment transaction; responsive to entry of an account number, determining whether said entered account number is valid; prompting said caller to enter a debit card number using said telephone keypad, said debit card number identifying a payor in connection with said current payment transaction; responsive to entry of a debit card number, determining whether said entered debit card number is valid; prompting said caller to enter a payment amount using said telephone keypad; responsive to a determination that a payment amount has been entered and further responsive to a determination that said entered access code, account number and debit card number are valid accessing a remote debit card network associated with said entered debit card number, said accessed remote debit card network determining whether sufficient funds exist in an account associated with said entered debit card number to complete said current payment transaction, responsive to a determination that sufficient funds exist in said associated account, deducting said entered payment amount from said account associated with said entered debit card number, adding said entered payment amount to an account associated with said entered account number and informing said caller of an approval code issued by said accessed remote debit card network and storing said entered access code, account number, debit card number and payment amount in a transaction log file of said telepay system, and responsive to a determination that sufficient funds do not exist in said associated account, informing said caller that said current payment transaction has been declined and terminating said current payment transaction.

Brief Summary Text (19):

A final technical advantage achieved with the invention is the provision to the recipient of the bill payment of an electronic daily general ledger or activity summary, that balances back to the gross amount of electronic deposits made in the designated bank accounts by the utilized debit card networks. Moreover, the system of the present invention offers to the consumer the advantage of anywhere, anytime, convenience with complete spontaneity as to the system usage.

Detailed Description Text (2):

Referring to FIG. 1, the general operation and structure of the system of the present invention will be described, it being understood that the operation of the system will be described in greater detail with reference to FIGS. 2.1, 2.7, 3.1 and 4.1. When a consumer calls into the TelePay system 10 using a telephone 12, the consumer is prompted by an interactive voice response unit within the system 10 to input certain necessary information, to wit, payee access code, debit card number, account number, and amount. The TelePay system 10 then checks all of its internal files, including an account number velocity file 14, a debit card velocity file 16 and a negative file 18, to validate the access code entered, the card number presented, the validity of the account number, and if that card number and/or account number has ever processed a fraudulent transaction. If any of these internal checks into the TelePay system 10 process indicate fraud, then the transaction is denied. If all of the checks are passed, then the TelePay system 10 assembles the data into an authorization request message, which is electronically sent to a debit card network 20 for transmission to a financial institution 22 that issued the card for verification of balance on deposit.

Detailed Description Text (3):

The debit card network 20 receives a response as to whether or not there are sufficient funds on deposit to process the transaction requested by the consumer. The debit card network 20 prepares an appropriate deduction from the consumer's account and prepares an appropriate deposit to the payee's account to be processed later. In addition any fees that are due from the payor are also preprocessed at this time. The debit card network then sends a message to the TelePay system 10 while the consumer is still on the telephone 12 line. The TelePay system 10 will then translate the numeric data received into an audible verbal response transmitted to the consumer via the telephone 12.

Detailed Description Text (4):

Settlement, as described in greater detail, with reference to FIG. 3.1, is defined herein as the methodology of debiting and crediting the appropriate accounts affected by the above-described transaction. These accounts would affect the payor, the payee, and the TelePay system 10 for any transaction fee. The debit card network 20 will initiate this process. The debit card network 20, however will only deposit a TOTAL of the days transactions into the payee's account. The network has no capability to discern which consumer paid how much. It then becomes the responsibility of the TelePay system 10 to detail the specific account numbers and amount of payments that were made that day. This is accomplished by a computer dial-up link (RJE) 24 from the TelePay system 10 to the payee's billing system 26. The TelePay system 10 will also bill the payee on a monthly basis for 800 telephone line usage (if any). The accounts receivable department of the payee is also provided with the capability to call into the TelePay system 10 to inquire as to if and when a consumer initiated a payment.

Detailed Description Text (5):

A single 800 number is used by the TelePay system 10. Technology allows for a virtually unlimited number of telephone lines to terminate on the same number, limited only by the compliment of computer hardware and its capabilities that are running the system. The caller will be asked to enter the access code of the bill to be paid. This access code typically will be printed on the bottom of the statement in an obvious manner and is a requirement of all payees utilizing the service. The code will identify the payee within the TelePay system 10 and will activate the TelePay software to verbalize the customer's selection in order to give positive re-enforcement as is the case with all customer input (i.e. "you have elected to pay Florida Power and Light in Miami, Fla. " Press 1 if this is correct and you wish to continue, or press 2 if incorrect"). If incorrect, the customer will be asked to input another access code, or to terminate the call. Assuming the proper access code is confirmed, the next step will be the entering of the account number of the bill to be paid, as this number also appears on the monthly statement. All selections will be verbally re-enforced.

Detailed Description Text (6):

The next step will be the entering of the debit (ATM) card number. Various TelePay system 10 checks will be done on this entry. Verbal re-enforcement of the numbers entered is again given to the user ("You have entered 5419 23485 4657. Please press 1 if correct or 2 if incorrect"). The TelePay system 10 will then instruct the user to enter the amount of the payment and verbal positive re-enforcement will be given. If all has been acknowledge positively up to this point, then the system will give a verbal summary of the transaction and give the customer a final opportunity to validate the entries ("Press 1 if correct, or press 2 if incorrect"). When the transaction has been positively re-enforced by the user, the TelePay system will then build an authorization request that will be sent out to the existing debit (Electronic Funds Transfer) networks. When the transaction has been authorized, the system will once again give positive re-enforcement to the user ("Your payment to Dallas Gas and Electric in the amount of \$124.56 has been paid from your ATM card account number 5419 23485 4657. Your authorization number for this transaction is XXXXXXXX. Please make a note of this authorization code for future reference. If you would like to hear the authorization code for this transaction again, press 1. If you would like to pay another bill press 2. If you are finished press 3.").

Detailed Description Text (8):

All of the debit (Electronic Funds Transfer) networks are accustomed to the assessment, debiting and crediting of fees to the issuers and acquirers of debit (ATM) and credit transactions. In many cases, a 75.cent. fee for a customer to use an ATM card at an ATM that is not owned by the card issuing bank involves the dividing of that fee into increments as small as 5.cent.. In this manner all networks that are accessed are compensated to assist in the authorization and routing of the transaction. All of these fees are electronically credited to the entity that earned the revenue as a result of a contractual relationship with that particular network. This process happens every working day at a predetermined "cut off" period that separates business days and is referred to in the industry as "settlement".

Detailed Description Text (10):

Assuming that the transaction is authorized, then any fee that the customer is paying, in addition to the actual bill payment, is automatically deducted from the payor's account immediately and added to the amount that the debit card network will owe TelePay and the payee at settlement. The amount of the bill that was paid is automatically added to the amount that will be credited to the payee at the end of the business day (every payee is required to provide a bank account number that will be used to electronically credit the days receipts). TelePay's bank account will, in a like manner, be automatically credited for the transaction fee. Any network usage fees that have to be paid to process the transaction by the use of an debit card network will be electronically paid by the TelePay system 10 to the appropriate service provider. Once a day at TelePay's settlement time, each payee participating in the system will receive the electronic on-line detail summary of the days individual transactions for posting to the consumer's account.

Detailed Description Text (12):

After the caller enters the access code, it is electronically checked against the list of authorized payees participating in the system 10 in step 204. In step 206, a determination is made whether the entered access code is valid. If the access code is invalid, in step 208, the system 10 checks to determine whether this is the third incorrect entry of an access code. If this is not the third incorrect entry of the access code, in step 210, the system 10 instructs the caller that the access code is invalid, and offers the caller to opportunity to re-enter the access code in step 202. If this is the third incorrect entry of an access code, in step 212, the system 10 instructs the caller to check the access code information and call again.



Detailed Description Text (13):

If the access code is entered properly within three attempts, in step 214, the caller is prompted to enter the account number of the bill that they are paying. In step 216, the system 10 checks the account number for validity. The validity check is based on the methodology that the payee uses to verify account numbers and will vary according to payee. The system 10 will have all of the participating payees verification methodologies. This methodology could be a MOD 10 or MOD 11 check digit routine with or without a check digit in it's most basic implementation. In a mere sophisticated environment, the system would have in it's database, a list of all the valid account numbers for that particular payee, commonly known to those skilled in the art as a "shadow file."

Detailed Description Text (14):

In step 218 (FIG. 2.2), a determination is made as to the validity of the account number entered. If the entered account number is not valid, in step 220, a determination is made as to whether this is the third incorrect entry. If it is not the third incorrect entry, in step 221 (FIG. 2.1), the caller is informed that the entry is invalid and is given an opportunity to reenter the account number. If the entry attempt is the third invalid attempt, in step 222, the caller is instructed to check their information and call again. If a valid account number is entered within three attempts, in step 224, the system 10 requests the caller to enter the debit card number.

Detailed Description Text (17):

If the caller enters a correct amount within three attempts, in step 248 (FIG. 2.4), the system 10 initiates a velocity file 14 check. The velocity file 14 is an internal file to this invention that restricts the number of times that a payor account number can be paid electronically using the system 10 over a 30 day period. The numerical value of the velocity file is individually selectable by each payee participating in the system 10, and will prevent excessive payments from their customers that have the potential for fraud. In step 250, if payments are located in the velocity file 14 that indicate to the system 10 a violation of the number of transactions permitted over a 30 day period by the payee, in step 252, the caller is notified that their transaction cannot be processed, due to the excessive frequency of usage. If the transaction is within the number allowed by the payee over a thirty day period, in step 254, the system 10 performs the velocity file check on the debit card number that the caller entered.

Detailed Description Text (18):

The numerical value of the debit card velocity file 16 is determined by the system 10 based on, but not limited to, historical usage data of all payees and payors over a given period of time. This value is variable and is achieved generally by multiplying the total number of payees participating in the system times the total number of payments allowed by each payee over a 30 day period. If the system 10 determines that the transaction by the payor exceeds the debit card velocity file criteria, in step 256, the caller is notified that the transaction cannot be processed due to the frequency of the number of uses of the debit card used to process transactions over a thirty day period.

Detailed Description Text (19):

If the transaction by the payor does not exceed the debit card velocity file criteria, in step 258 (FIG. 2.5), the system 10 determines whether either the payor account number or the debit card number is contained in the negative file 18 comprising a database of negative accounts stored on the system 10. The purpose of the negative file 18 maintained by the system 10 is to prevent debit card numbers and account numbers that have been involved in fraudulent transactions from initiating another transaction. This file is updated by payees participating in the system by written notification to the service. An employee of the service would then update the system.

Detailed Description Text (20):

If the system 10 determines that a match on either payor account number or debit card number has been found, in step 260, the caller is informed that the transaction cannot be processed. If there is not a match found on the negative file 16, then the details of the transaction are summarized to the caller verbally on the interactive voice response system in step 262. In step 264, the caller is prompted to begin the processing of the transaction by pressing one (1) on the telephone keypad, or by pressing two (2) on the telephone keypad to abort the transaction. In step 266, the system 10 checks the caller's response. If two has been depressed by the caller, in step 268, the system 10 thanks the caller and terminates the call.

Detailed Description Text (22):

Those skilled in the art are aware that a debit card network, i.e. Pulse in Houston, Tex. MOST in Washington D.C., Honor in Maitland, Fla. etc., process primarily ATM (Automated Teller Machine) transactions, and do not rely on the Automated Clearing House (ACH) to process individual transactions. In addition to the face value of the bill to be paid, the system adds a service charge that the caller will electronically pay for use of the convenience of the system. Through the use of the debit card network, rather than the ACH, the transaction is positively verified against funds on deposit prior to the processing of the transaction. In step 272, while the system 10 is outdialing to the debit card network 20, the system 20 plays a customized individually recorded marketing message for each payee utilizing the system 10, that will promote a service of the payee while the caller is awaiting approval. If the debit card network and the subsequent transmission to other debit card networks (if required) make the determination that funds are not available in the caller's account selected by the debit card number, then the transaction will be declined.

Detailed Description Text (23):

In step 274, the system 10 awaits a reply from the debit card network 20. In step 276, the system 10 then makes a determination on the disposition of the transaction based on the response received back from the debit card network 20. If the response from the debit card network 20 indicates to the system 10 a declination, with which those skilled in the art are familiar, in step 278, the system 10 informs the caller that the transaction was declined by the financial institution that issued their debit card number. If the response from the debit card network 20 indicates an approval, the caller will be verbally informed of the approval code in step 280. In step 282, the approved transaction is updated in a system transaction log file that will later become the basis for the transmission for payment data to each individual payee. The transaction log file contains the debit card number, payor account number of the bill paid, amount of the bill paid, time/date, and approval code. The log file is individually kept for each payee participating in the system for later electronic transmission for billing system update.

Detailed Description Text (24):

In step 284 (FIG. 2.7), when a transaction is successfully completed, the aforementioned debit card number velocity file that was checked as part of the pre-processing procedures is updated to reflect the transaction. In step 286, the velocity file for the account number of the bill that was paid is updated to reflect the transaction. In step 288, the system 10 asks the caller if he or she would like to pay another bill by requesting the caller to press one (1) to pay another bill, or two (2) to terminate the call. In step 290, the system 10 makes a determination as to whether the caller would like to make another payment, based on the response indicated by the caller. If a one was pressed, the system 10 prompts the caller for another access code in step 202 (FIG. 2.1). If a two is pressed, the system 10 terminates the call in step 292.

Detailed Description Text (25):

FIG. 3.1 is a flowchart of the settlement process of the present invention. After close of the business day, by the debit card network 20, the debit card network 20 begins to move the funds electronically; a process with which those skilled in the art are familiar. At that point the system 10 is in a position to transmit the detail of the days transactions to the individual payees that will be receiving electronic credits from the debit card network 20. The debit card networks transmit only the gross dollar amount of funds for crediting to each payee. The system 10 performs the actual detail of the electronic transmission of individually paid accounts. The system 10 will recognize the time of day by the internal clock common to most computer systems, and select the first payee in the aforementioned transaction log file. In step 300, the system 10 will outdial using an ordinary telephone line into the first payee on the system in an effort to connect to the computer billing system 26 (FIG. 1.1).

Detailed Description Text (26):

Once a telephonic connection is established, in step 302, the system 10 begins the process of transmitting the payor account numbers and amounts of the bills that were paid since the last settlement period using the system 10. This process is known to those skilled in the art as remote job entry (RJE). In step 3143 the system 10 determines whether there are other files to be transmitted. In step 306, the system 10 outdials the appropriate telephone number established in advance to establish a telephonic RJE link with the next payee. In step 302, in a manner similar to the aforementioned, the transactions that the system 10 performed in favor of that particular payee will be transmitted to that payee's computer billing system 10. Once all the files have been transmitted, the settlement process is terminated in step 308.

Detailed Description Text (27):

FIG. 4.1 is a flowchart of a payee inquiry process of the present invention, which provides a payee with the ability to initiate a telephone call into the present invention operating as a third party to the transaction, in order that payment information can be discerned in conjunction with a touch tone telephone. The process is initiated by a payee calling into the system 10. In step 400, the system 400 will ask the caller to input a security code, which is assigned to each payee and is different for each payee. The input of a proper code will indicate to the system which payee payments are to be inquired upon. Without a proper code, no inquiry access is permitted. It is important to recognize that this system capability is for the payee, and not for the actual payor of the bill. This system capability assists in past due collection activity.

Detailed Description Text (28):

In step 402, the system 10 checks its internal data files to ascertain the validity of the code entered. If an improper code is entered, in step 404, the system 10 informs the caller that the code is invalid. If the entered code matches one that was contained in the system database, in step 406, the system 10 requests the caller to enter the account number of the customer whose bill is being inquired upon. After the caller enters the account number, in step 408, the system attempts to locate it on the system database. If the system 10 cannot locate the account number, in step 410, the caller is informed that no payment exists for the entered account number and is given an opportunity to enter another account number in step 406. If the entered account number is located, in step 412, the system 10 informs the caller of the details of the transaction, to wit, time, date, amount, and authorization number of the payment. In step 414, upon completion of the audio text information, the caller is asked whether he or she has another inquiry to perform. If so, in step 406, the system 10 prompts the caller to enter the account number; otherwise, the system 10 terminates the call in step 416.

Detailed Description Text (29):

The crux of this invention is that bill payment transactions have never been presented to the debit networks for a real-time authorization initiated by the

consumer from a touch tone telephone with the debit card number used as the transaction vehicle. Additionally, this process has never been done without the requirement of a PIN (personal identification number) and still maintain an assemblage of transaction security. In the TelePay System, when a transaction is entered by a consumer, and subsequently passed on to an outside debit card network for authorization, a number of things happen. Assuming that the transaction is authorized, then any fee that the customer is paying, in addition to the-actual bill payment, is automatically deducted from the payor's account immediately and added to the amount that the debit card network will distribute between TelePay and the payee at settlement. The amount of the bill that was paid is automatically added to the amount that will be credited to the payee at the end of the business day (every payee is required to provide a bank account number that will be used to electronically credit the days receipts). Telepay's bank account will, in a like manner, be automatically credited for the transaction fee. Any network usage fees that have to be paid to process the transaction by the use of an debit card network will be electronically paid by TelePay to the appropriate service provider. Once a day at TelePay's settlement time, each payee participating in the system will receive the electronic on-line detail summary of the days individual transactions for posting to the consumer's account.

Detailed Description Text (30):

The following criteria and conditions are part of the TelePay method and unique process prior to the acceptance of a debit card number into the system in order to ensure a proper transaction has been presented and to add a level of usage security. First, a service address (telephone number or residential electricity site, etc.) or payee account number can only be the recipient of a specific limited number of payments within 30 days that is selectable by the funds recipient and a velocity file by account number is kept at the TelePay system tracking this limitation. In addition, a debit card number can only be used in the TelePay system a specific limited number of times based on a recipient of funds selectable parameter and current recipient of funds (payee) negative files due to adverse experience are added to the TelePay system prior to implementation.

Detailed Description Text (31):

Still further, any consumer chargebacks will prevent that customer's telephone number/electricity service address number and that credit/debit card number to have system access. Appropriate additions will be made to the negative file unless specific overrides are requested by the funds recipient. Also, all transactions will be routed electronically to the card issuing entity/network by the TelePay system for positive authorization as to card acceptability, credit limit guidelines, payment status, balance availability, and any and all criteria that the issuer deems appropriate.

Detailed Description Text (32):

Additionally, the TelePay system will provide records of all declinations by card number and by telephone number, electric service account number, or payer account number, whichever is appropriate and a check will be done on all debit card numbers entered into the TelePay system to ensure that the input number is an assigned number within the criteria of the issuing entities, as well as on service address account numbers to insure that the proper number and sequence of digits have been entered to add an additional level of accuracy to the numeric entry process. Moreover, the customer will always be given positive audio reinforcement at critical steps during the data entry process to assist in the entry of accurate information and transaction declinations due to non-sufficient funds will be audio referred for the consumer to contact their card issuing institution.

Detailed Description Text (35):

Although illustrative embodiments of the invention have been shown and described, a wide range of modification, change and substitution is intended in the foregoing disclosure and in some instances some features of the present invention may be

employed without a corresponding use of the other features. Accordingly, it is appropriate that the appended claims be construed broadly and in a manner consistent with the scope of the invention.

CLAIMS:

1. A method of paying bills using a telecommunications line connectable to at least one remote payment card network via a payee's agent's system, wherein a caller begins session using a telecommunications line to initiate a spontaneous payment transaction to a payee, the method comprising the steps of:

prompting the caller to enter an account number identifying an account of a payor with the payee in connection with the payment transaction;

prompting the caller to enter a payment number selected from one or more choices of credit or debit forms of payment;

prompting the caller to enter a payment amount for the payment transaction;

upon a payment amount being entered and during the session, accessing a remote payment network associated with the entered payment number, the accessed remote payment network determining, during the session, whether sufficient available credit or funds exist in an account associated with the entered payment number to complete the payment transaction, and responsive to a determination that sufficient available credit or funds exist in the associated account, charging the entered payment amount against the account associated with the entered payment number, adding the entered payment amount to an account associated with the entered account number, informing the caller that the payment transaction has been authorized, and storing the account number, payment number and payment amount in a transaction log file of the system.

2. The method of claim 1 wherein said payment number is a PIN-less credit or debit card number.

4. The method of claim 1 further comprising the steps of prompting the caller to select a credit or debit option, prompting the caller to enter a payment amount, and prompting the caller to acknowledge a transaction fee to the payee's agent's system.

6. A method of paying bills using a telecommunications network line connectable to at least one remote payment card network via a payee's agent's system, wherein a caller begins session using a telecommunications network line to initiate a spontaneous payment transaction to a payee, the method comprising the steps of:

prompting the caller to enter a payment number selected from one or more choices of credit or debit forms of payment;

prompting the caller to enter a payment amount for the payment transaction;

accessing a remote payment network associated with the entered payment number, the accessed remote payment network determining, during the session, whether sufficient available credit or funds exist in an account associated with the entered payment number to complete the payment transaction, and upon a determination that sufficient available credit or funds exist in the associated account, charging the entered payment amount against the account associated with the entered payment number, adding the entered payment amount to an account associated with the entered account number, and storing the account number, payment number and payment amount in a transaction file of the system.

7. The method of claim 6 wherein said payment number is a PIN-less credit or debit

card number.

8. The method of claim 6 further comprising the steps of prompting the caller to select a credit or debit option, prompting the caller to enter a payment amount, and prompting the caller to acknowledge a transaction fee to the payee's agent's system.

[Previous Doc](#)

[Next Doc](#)

[Go to Doc#](#)

[First Hit](#) [Fwd Refs](#)[Previous Doc](#)[Next Doc](#)[Go to Doc#](#)**End of Result Set****Generate Collection****Print**

L10: Entry 1 of 1

File: USPT

Aug 19, 2003

US-PAT-NO: 6609120

DOCUMENT-IDENTIFIER: US 6609120 B1

**\*\* See image for Certificate of Correction \*\***

TITLE: Decision management system which automatically searches for strategy components in a strategy

DATE-ISSUED: August 19, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Honarvar; Laurence	Arnold	MD		
Fatigante; Steven	San Francisco	CA		
Payne; Blake	Arlington	VA		

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
American Management Systems, Inc.	Fairfax	VA			02

APPL-NO: 09/ 335476 [PALM]

DATE FILED: June 18, 1999

## PARENT-CASE:

CROSS-REFERENCE TO RELATED APPLICATIONS This application is related to, is a continuation-in-part (CIP) of, and claims the benefit of, U.S. application titled USE OF ONLINE ANALYTICAL PROCESSING (OLAP) IN A RULES BASED DECISION MANAGEMENT SYSTEM, U.S. Ser. No. 09/217,016, filed Dec. 21, 1998, now U.S. Pat. No. 6,430,545, and which is incorporated herein by reference. This application claims the benefit of provisional application No. 60/076,910, filed Mar. 5, 1998, now abandoned. This application is related to, and claims the benefit of, U.S. application titled DECISION MANAGEMENT SYSTEM FOR CREATING STRATEGIES TO CONTROL MOVEMENT OF CLIENTS ACROSS CATEGORIES, U.S. Ser. No. 09/217,017, filed Dec. 21, 1998, now U.S. Pat. No. 6,321,206, and which is incorporated herein by reference. This application is related to, and claims the benefit of, U.S. application titled SIMULTANEOUS CUSTOMER/ACCOUNT STRATEGY EXECUTION IN A DECISION MANAGEMENT SYSTEM, U.S. Ser. No. 09/216,985, filed Dec. 21, 1998, and which is incorporated herein by reference. This application is related to, and claims the benefit of, U.S. application titled VERSIONING IN A RULES BASED DECISION MANAGEMENT SYSTEM, U.S. Ser. No. 09/219,341, filed Dec. 23, 1998, and which is incorporated herein by reference. This application is related to, and claims the benefit of, U.S. application titled PARAMETER HIERARCHY FOR A DECISION MANAGEMENT SYSTEM, U.S. Ser. No. 09/219,340, filed Dec. 23, 1998, and which is incorporated herein by reference. This application is related to, and claims the benefit of, U.S. application titled DECISION MANAGEMENT SYSTEM WHICH IS CROSS-FUNCTION, CROSS-INDUSTRY AND CROSS-PLATFORM, U.S. Ser. No. 09/219,338, filed Dec. 23, 1998, and which is incorporated herein by reference. This application is related to, and claims the benefit of, U.S. application titled DECISION MANAGEMENT SYSTEM PROVIDING QUALITATIVE

ACCOUNT/CUSTOMER ASSESSMENT VIA POINT IN TIME SIMULATION, U.S. Ser. No. 09/258,348, filed Feb. 26, 1999, now U.S. Pat. No. 6,405,173, and which is incorporated herein by reference.

INT-CL: [07] G06 F 17/30, G06 F 15/46

US-CL-ISSUED: 707/3; 705/8

US-CL-CURRENT: 707/3; 705/8

FIELD-OF-SEARCH: 705/7-10, 705/35, 707/2-5, 707/100, 707/103, 703/4-6, 709/246, 706/45, 706/46, 706/52, 706/60

PRIOR-ART-DISCLOSED:

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Search Selected

Search ALL

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ART-UNIT: 2171

PRIMARY-EXAMINER: Metjahic; Safet

ASSISTANT-EXAMINER: Chen; Te Yu

ATTY-AGENT-FIRM: Staas & Halsey LLP

ABSTRACT:

A computer-implemented, software based, decision management system which automatically searches for a respective strategy component through a strategy to identify where the strategy component is being used in the strategy, and to determine the strategy component's inter-relationships in the strategy. For example, an end user of the system selects a respective strategy component to be searched. A plurality of selectable inquiries are then automatically presented to the end user, where the plurality of selectable inquiries are context sensitive to correspond to the selected strategy component. The end user then selects a respective inquiry. Then, the system automatically searches for the selected strategy component through the strategy in accordance with the selected inquiry to identify where the strategy component is being used in the strategy. The strategy can be searched, for example, by analyzing linked tables of a relational data model for implementing the strategy.

36 Claims, 32 Drawing figures

[Previous Doc](#)

[Next Doc](#)

[Go to Doc#](#)

[First Hit](#) [Fwd Refs](#)[Previous Doc](#)[Next Doc](#)[Go to Doc#](#)

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L10: Entry 1 of 1

File: USPT

Aug 19, 2003

DOCUMENT-IDENTIFIER: US 6609120 B1

**\*\* See image for Certificate of Correction \*\***

TITLE: Decision management system which automatically searches for strategy components in a strategy

Parent Case Text (7):

This application is related to, and claims the benefit of, U.S. application titled PARAMETER HIERARCHY FOR A DECISION MANAGEMENT SYSTEM, U.S. Ser. No. 09/219,340, filed Dec. 23, 1998, and which is incorporated herein by reference.

Brief Summary Text (3):

The present invention relates to a decision management system for creating strategies to manage clients, such as customers, accounts, or applicants, of an organization. More specifically, the present invention relates to a software tool for locating strategy components in a strategy of a decision management system.

Brief Summary Text (5):

A typical organization maintains a significant amount of information about its clients, where "clients" refers to the customers, accounts or applicants for services or products of the organization. This information can be effectively used, for example, to increase productivity and reduce costs, while achieving the goals of the organization. Such goals may be to improve profitability and maximize customer value.

Brief Summary Text (8):

Assume that a diversified financial services company is trying to leverage its customer base by cross-selling its various products. It currently uses limited internal customer information and credit bureau information to identify existing customers for cross-sell campaigns. For example, they might send "invitations to apply" for a home equity loan to those customers who own a mortgage with the company, and meet a minimum credit bureau score threshold. Imagine how much more powerful their cross-selling efforts would be if they could use information from all of the customers' accounts to offer pre-approved home equity loans to customers where the likelihood of a sale was high, the probability of default was low, and the financial value of that sale was high.

Brief Summary Text (9):

As another example, assume that a regional bell operating company is currently applying only age-based criteria (e.g., "days past due") to its accounts receivable portfolio to identify candidates for its collections department and to handle those customers. The content of the outbound collection notices and phone calls is driven solely by the age and amount of a customer's unpaid balance. Imagine if the company had a tool that helped it select and prioritize collection accounts based on the likelihood of a customer interaction making a bottom line difference. Instead of calling or writing all overdue accounts, they could focus resources on those where the customer interaction would make the greatest difference. In addition, they would save the expense and ill will generated by calling customers who would pay without a collections contact.

Brief Summary Text (10):

As a still further example, assume that a manager of a large telephone customer service center for a super-regional bank has been given only hard-line corporate policy to make decisions about fee and rate concessions. While her service reps attempt to stay to the company line, she is deluged with requests from good customers to talk to the manager. She uses her judgment based on the incomplete information available to her to decide which concessions are appropriate to prevent attrition of profitable customers. Just imagine if the service reps had guidelines that were specific to each customer, based upon customer data that indicates their value to the organization, likelihood of attrition, risk level, and other characteristics. The manager could stand by these guidelines with confidence. There would be no concessions made to unprofitable customers, fewer manager overrides, shorter calls, and reduced attrition of the customers they want to keep.

Brief Summary Text (14):

FIG. 1 is a diagram illustrating the general concept of a software based decision management system. Referring now to FIG. 1, a software based system 10 receives information from operational and/or customer information systems 20, such as, for example, billing systems, account management systems, credit bureau systems and data warehouses. Software based system 10 prioritizes and tailors customer interactions based on predictive information, specific business rules, and continually evolving decision strategies. Software based system 10 then determines an appropriate action which is to be taken by an action-taking system 30. An appropriate action to be taken could include, for example, a call to a customer, a specific collections procedure or a specific marketing action.

Brief Summary Text (17):

For example, FIG. 2 is a diagram illustrating the functional flow of a decision management system, such as that in Strata.TM. release 3.0. Referring now to FIG. 2, in step 140, an inbound event is a trigger that is received from one or more external systems to identify that a particular client event has occurred. Here, a client refers to people or entities which interact with, or do business with, an organization. For example, clients include customers, accounts or applicants for services or products of the organization. Each client has associated attributes such as, for example, client age, client balance, etc., which are maintained by the system. An attribute is a data element passed into the decision management system from an external source and/or derived by the decision management system through its own evaluation and processing.

Brief Summary Text (18):

From step 140, the system moves to step 150, where clients are assigned to different segments. A segment is a grouping of clients based on a characteristic by which the clients will be separated for applying different rules. Generally, a segment is a high-level segregation of clients for the purpose of associating largely independent high-level strategy. Thus, segments are separate groups of clients, for which a unique set of evaluation procedures have been defined. For example, a telecommunications company might have a segment for residential customers and another for business customers. Each segment can have, for example, a separate manager who is the only one with security rights to setup or modify the evaluation procedure for that segment.

Brief Summary Text (19):

From step 150, the system moves to step 155, where each segment is further divided into categories. A category is typically a grouping of clients as defined by the organization such that it aligns client interaction/value management objectives. In other words, categories represent groups of clients based on how the organization views the clients. For example, a bank may divide clients (such as credit card holders) into the categories of Bronze, Gold, and Platinum, based on how the bank views the credit worthiness of the clients.

Brief Summary Text (24):

Function sets are decision logic modules formed by one or more "functions." Functions can be, for example, decision trees or score models. There are preferably several different functions which are available in the creation of any function set. One or more functions are typically grouped into function sets when they have comparable objectives (i.e., score cards to predict risk, decision trees to evaluate a credit line, etc.).

Brief Summary Text (28):

FIGS. 4(A) and 4(B) are diagrams illustrating the matching of inbound events to function sets in step 170 of FIG. 2. Referring now to FIG. 4(A), for example, when an inbound event 91 is a credit card campaign, the following function sets are applied, in order: credit card propensity to buy score 92, risk score 93 and offer selection 94. A result 95 of the applied function sets is a determination of whether to send a credit card offer.

Brief Summary Text (31):

If a function set only contains one function, no experimentation will take place in that function set since every client, regardless of its test group, will be required to use the function. For example, in FIG. 5, no experimentation takes place in the credit card propensity to buy score 92, since this function set contains only one function. By contrast, in FIG. 5, experimentation takes place in offer selection 94, since this function set includes more than one function. This approach provides the strategy analyst with the flexibility to selectively experiment on each strategy component of the overall strategy, as appropriate.

Brief Summary Text (36):

FIG. 7 is a diagram illustrating an example of the correspondence of functions of a respective function set to the strategy test cells of the matrix. Referring now to FIG. 7, various function sets, including credit card propensity to buy score 92, risk score 93 and offer selection 94, are executed in a user-defined order upon the occurrence of inbound event 91. Offer selection 94 includes a respective function, which is possibly a decision tree, for each strategy test cell.

Brief Summary Text (41):

Referring now to FIG. 8, in step 200, for the above-described decision management system, each path through each decision tree is tagged with a unique identifier referred to as a report group. Although it is preferable to tag each path through each tree so that complex strategy can be created and refined, it is not necessary for each path to be tagged. Instead, the selection of which paths to tag is a matter of design choice, based on the strategy parameters of the decision management system.

Brief Summary Text (42):

Therefore, a report group is a tag which identifies a unique path through a strategy, and is preferably, although not necessarily, applied to terminal nodes of decision trees. A report group is preferably independent of the test group, so that it can be associated with the same branch of comparable trees in two or more test groups. Report groups are a valuable strategy evolution tool, and enable comparative evaluation of strategy effectiveness for categories within a segment. In the present example of a decision management system, categories allow for the analysis of clients who, once being individually evaluated against user-defined criteria, are determined to have similar qualities in consideration of organizational objectives. For example, a category may be defined as all customers who have average current value, high potential value, and a low probability of attrition. Report groups can be placed throughout a decision strategy in order to assure that performance results are accumulated for each respective part of the strategy.

Brief Summary Text (45):

From step 210, the system moves to step 220, where performance over time for observation points is accumulated, and matched against the observation points. Generally, an observation point is a snap-shot of a point in time, and has dimensions across which analysis of the data can be performed. A specific client can have multiple observation points. Therefore, in step 210 in FIG. 8, observation points for a client are noted. Then, in step 220, for each client, performance data is matched against observation points. For example, once a month, performance data for a client may be obtained. This performance data is then matched, or correlated, to the appropriate observation points for each account and/or customer.

Brief Summary Text (48):

OLAP uses the concepts of "continuous" and "discrete" dimensions. Generally, with a discrete dimension, every value of that dimension has its own discrete value. For example, report groups A, B and C are discrete values of the report group dimension. By contrast, with a continuous dimension, there are a near infinite number of values of the element constituting the dimension. For example, there may be an infinite number of values of a balance dimension, since a balance may be virtually any amount. Usually, ranges are used with continuous dimensions so that the dimensions appear more discrete, thereby allowing the data to be managed effectively. The use of OLAP in a decision management system is described in U.S. application titled USE OF ONLINE ANALYTICAL PROCESSING (CLAP) IN A RULES BASED DECISION MANAGEMENT SYSTEM, U.S. Ser. No. 09/217,016, filed Dec. 21, 1998, and which is incorporated herein by reference.

Brief Summary Text (55):

Moreover, changes to the strategy would require an additional, complex operation to be manually performed by the strategy analyst to manually examine and link components in the changed strategy.

Detailed Description Text (36):

For example, FIG. 13(B) is a diagram illustrating a window displaying all the attributes in the system, as found from the attribute table. More specifically, the window display in FIG. 13(B) indicates that there are two types of attributes, an external type and a computed type. An external type attribute is, for example, an attribute passed into the decision management system from another system on a data extract. As indicated in FIG. 13(B), the external attributes in this example are balance and age. These attributes might represent an account balance and the age of a balance. A computed type attribute is, for example, an attribute calculated in the system using other attributes as inputs. As indicated in FIG. 13(B), the only computed attribute in the system is an average salary (AVESAL).

Detailed Description Text (51):

Therefore, via the use of a navigation command, if, for example, the user wants to delete a strategy component (such as an attribute), or change it, the user must first find the strategy component. Then, the user would automatically navigate to the found strategy component via a navigation command, and then make a change.

Detailed Description Text (58):

For example, FIG. 16 is a diagram illustrating a more detailed hardware architecture of a decision management system, according to an embodiment of the present invention. Referring now to FIG. 16, a workstation 400 provides a centralized user interface through which a strategy analyst, or system user, can control the system. The primary purpose of workstation 400 is to enable the entry, maintenance and propagation of decision strategies and simulation parameters to a decision engine/data aggregation platform 410 which includes a decision engine 412 and a data aggregation component 414. These strategies reside in a relational data model 405 while they are being edited, maintained, and selected for simulation/production. Workstation 400 also provides access to OLAP analysis and reporting systems, possibly via an OLAP server 420, and consistently using an OLAP

database 430. A server 432 and a mainframe 434 typically run different processing modes, and provide the processing power for decision engine/data aggregation platform 410.

Detailed Description Text (60):

Decision engine 412 deploys the business decisioning rules and simulation parameters entered on workstation 400 against client data. This architecture is highly scaleable and can operate in both on-request or batch processing modes as well as in both mainframe and client/server environments.

Detailed Description Text (70):

The many features and advantages of the invention are apparent from the detailed specification and, thus, it is intended by the appended claims to cover all such features and advantages of the invention which fall within the true spirit and scope of the invention. Further, since numerous modifications and changes will readily-occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation illustrated and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

US Reference US Original Classification (25):

705/38

US Reference Group (25):

6029149 20000200 Dykstra et al. 705/38

[Previous Doc](#)

[Next Doc](#)

[Go to Doc#](#)